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OLYMPIC PIPE LINE COMPANY CSM Site Summary

OLYMPIC PIPE LINE COMPANY

Oregon DEQ ECSI #: 2374 (#3342 for the Portland Delivery Facility)

11400 NW St. Helens Rd (from RM 3.5 to RM 7.9)

DEQ Site Mgr: No PM

Latitude: 45.6033°

Longitude: -122.787°

Township/Range/Section: 2N/1W/34

River Mile: 3.5-7.9 West bank

LWG Member ☐ Yes ☒ No

Upland Analytical Data Status: ☐ Electronic Data Available ☒ Hardcopies only

Olympic Pipe Line operates three delivery facilities with aboveground structures (valves, tanks, etc.) in the Portland area along with the underground petroleum distribution pipelines. These aboveground facilities include the following:

- **Portland Delivery Facility (PDF)** - 9420 NW St. Helens Rd. (a leased parcel on the Exxon/Mobil Oil Terminal property)
- **Linnton Delivery Facility (LDF)** - 10225 NW 112th Ave. (a leased parcel on the Kinder Morgan Liquid Terminals-Linnton property)
- **Portland Junction Facility (PJF)** - 6160 NW Front Ave. (a leased parcel on the Willbridge Bulk Fuel Facility (aka Kinder Morgan-Willbridge) property).

Note: This site summary only discusses the PDF site. Olympic Pipe Line has documented releases at the PDF site and has conducted environmental investigations only at this site. The PDF has been assigned a separate ECSI #3342.

Kinder Morgan-Linnton (ECSI #1096) and the Willbridge Bulk Fuel Facility (ECSI #1549) are LWG members, and those companies have prepared their site summaries, which include the respective Olympic Pipe Line facilities.

1. SUMMARY OF POTENTIAL CONTAMINANT TRANSPORT PATHWAYS TO THE RIVER

The current understanding of the transport mechanism of contaminants from the upland portions of the PDF site to the river is summarized in this section and Table 1, and supported in following sections.

1.1. Overland Transport

At the PDF, a soil containment dike surrounds the tanks, and there is expected to be little overland transport of contaminants via soil erosion. Most of the site outside the tank farm is paved, and stormwater runoff is routed to a stormwater collection system. Spills or releases in areas outside the tank farm could be transported to the stormwater collection system and discharged to the river (see Exxon/Mobil site summary, ECSI #137).

1.2. Riverbank Erosion

The PDF site is not located adjacent to the Willamette River.

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1.3. Groundwater

A shallow groundwater petroleum plume is present beneath the PDF site. The source of the plume at the PDF site has not been identified. Shallow groundwater flows across the Exxon/Mobil Oil Terminal site toward the Willamette River. The extent of the petroleum plume present beneath the PDF site and its spatial relationship to contaminated groundwater on the Mobil Oil Terminal site, as well as the river, are not known. Preferential groundwater pathways were not evaluated in available site investigation information.

1.4. Direct Discharge (Overwater Activities and Stormwater/Wastewater Systems)

The Exxon/Mobil Oil Terminal where the PDF is located has five stormwater outfalls, two of which have been abandoned (described in Section 9.3 of the Exxon/Mobil Oil site summary). Because the stormwater outfalls service the entire Exxon/Mobil property, any potential contaminant source due to direct discharge at the site could not be attributed exclusively to the PDF tanks.

1.5. Relationship of Upland Sources to River Sediments

See Final CSM Update.

1.6. Sediment Transport

Not applicable.

2. CSM SITE SUMMARY REVISIONS

Date of Last Revision: May 31, 2005

3. PROJECT STATUS

Activity	Date(s)/Comments
PA/XPA	<input checked="" type="checkbox"/> May 2001 (XPA for the PDF)
RI	<input type="checkbox"/>
FS	<input type="checkbox"/>
Interim Action/Source Control	<input type="checkbox"/>
ROD	<input type="checkbox"/>
RD/RA	<input type="checkbox"/>
NFA	<input type="checkbox"/>

DEQ Portland Harbor Site Ranking (Tier 1, 2, 3, or Not Ranked): Not Ranked

4. SITE OWNER HISTORY

Owner/Occupant	Type of Operation	Years
Olympic Pipe Line Company (owner)/ BP Pipelines, North America (operator)	Fuel transmission pipeline system	? to present
Delivery Facilities		
Exxon/Mobil Oil (owner)/ Portland Delivery Facility (lessee)	Fuel delivery facility on 0.5 acre	1965 to present

5. PROPERTY DESCRIPTION

The Olympic Pipe Line Company, operated by BP Pipelines, North America, is an interstate pipeline system, containing 12-inch, 14-inch, 16-inch, and 20-inch pipelines. The pipeline runs along a 299-mile corridor from Blaine, Washington to Portland, Oregon. The system transports gasoline, diesel, and jet fuel. Olympic Pipe Line operates three delivery facilities with aboveground structures in the Portland area. All three facilities lie on property leased from other companies. Complete descriptions of the entire properties on which Olympic Pipe Line facilities are located are available in the appropriate site summaries.

The PDF is a leased portion (encompassing approximately 0.535 acres) of the larger Exxon/Mobil Oil Terminal site. The site is relatively level with surface elevations ranging from 40 to 45 feet sloping gently downward toward the Willamette River northeast of the site. The river is approximately 350 feet away from the PDF site. The facility consists of two 84,000-gallon ASTs, a surrounding soil containment dike, an injection pump, and associated underground and aboveground product valves and piping, all completely enclosed by a 6-foot-high chain link fence.

6. CURRENT SITE USE

The PDF site is used for bulk storage and dispensing of fuels, including gasoline, diesel, and turbine fuel. No paint, solvents, or pesticides are used or stored at the facility. The only wastes generated are absorbent materials that are placed to catch drips of lubrication oil. Approximately 200 pounds per year of absorbent materials (e.g., oily rags) are generated, which are properly disposed of offsite by a contractor. Information about the dispensing of fuels from the PDF facility to the Exxon/Mobil Oil terminal was not found during research on this site.

7. SITE USE HISTORY

Olympic Pipe Line Company has leased the PDF facility from Exxon/Mobil since 1965. Additional site history information for the Exxon/Mobil property can be found in the Exxon/Mobil site summary (ECSI #137)

8. CURRENT AND HISTORIC SOURCES AND COPCS

The understanding of historic and current potential upland sources at the sites leased by Olympic Pipe Line is summarized in Table 1 (only relevant for the PDF). The following sections provide a brief overview of the potential sources and COPCs at the PDF site requiring additional discussion.

8.1. Uplands

TPH, PAHs, BTEX, and lead have been detected in upland surface and subsurface soil samples at the PDF site, primarily in the pipeline pump station (area of 1995 spill), AST area, soil stockpile area, and injection pump area. Low concentrations of petroleum constituents have been detected in shallow groundwater beneath the site. DEQ has suggested that the groundwater data indicate the plume may extend offsite in the downgradient direction, toward the river.

8.2. Overwater Activities

☐ Yes ☒ No

There are no overwater activities at the PDF facility.

8.3. Spills

Known or documented spills at the PDF site were obtained either from DEQ's Emergency Response Information System (ERIS) database for the period of 1995 to 2004, from oil and chemical spills recorded from 1982 to 2003 by the U.S. Coast Guard and the National Response

Center's centralized federal database [see Appendix E of the Portland Harbor Work Plan (Integral et al. 2004)], from facility-specific technical reports, or from DEQ correspondence. These spills are summarized below.

Date	Material(s) Released	Volume Spilled (gallons)	Spill Surface (gravel, asphalt, sewer)	Action Taken (yes/no)
11/12/95	Diesel and jet fuel	200-250	Asphalt, gravel, grass	Yes – spill was contained and cleaned up by Cowlitz Clean Sweep

9. PHYSICAL SITE SETTING

Explorations at the PDF facility included soil borings and groundwater monitoring wells. Information provided in this section was obtained primarily from the Environmental Sampling Program letter report (Landslide Technology 2000) and the Phase II Environmental Site Assessment report (GeoEngineers 2001).

9.1. Geology

Explorations at the site have been limited to shallow depths; thus, explorations have only penetrated fill. The upper 1 to 6 feet of fill material consists of gravel, and, in some locations, silt. Beneath this upper fill layer, explorations encountered layers of silty sand, sandy silt, and silt to the depths explored. The silty sand, sandy silt and silt are likely dredge fill material, similar to that encountered at shallow depths beneath the adjacent Exxon/Mobil Oil Terminal site (ECSI #137).

9.2. Hydrogeology

A shallow water-bearing zone has been identified in explorations completed within the fill unit at the site. The locations of monitoring well and borings completed at the site are shown in Supplemental Figure 2 from GeoEngineers (2003). Based on the data from the Exxon/Mobil Oil Terminal site that surrounds the PDF, the shallow groundwater flows northeast, onto the Mobil site and eventually toward the Willamette River. Refer to the Exxon/Mobil Oil Terminal site summary for additional details on the shallow groundwater in the area of the PDF site.

10. NATURE AND EXTENT (*Current Understanding*)

The current understanding of the nature and extent of contamination for the uplands portions of the sites are summarized in this section. When no data exist for a specific medium, a notation is made.

10.1. Soil

10.1.1. Upland Soil Investigations

☒ Yes ☐ No

On November 12, 1995, an estimated 200 to 250 gallons of diesel and jet fuel were spilled at the PDF during a transportation and filling event. Impacted soils were removed during the cleanup effort, and a composite sample was collected from the soil stockpile and analyzed for TPH (gasoline- and diesel-range) and BTEX compounds. Diesel-range hydrocarbons were detected in this sample at a concentration of 4,920 mg/kg. BTEX compounds were also detected (benzene = 1.1 mg/kg, ethylbenzene = 10.5 mg/kg, toluene = 17.5 mg/kg, xylenes = 48.6 mg/kg). Eight confirmation surface soil samples were subsequently collected from within the spill cleanup area described in Pacific Northern Environmental (1995) (see Supplemental Figure 2). Gasoline-range hydrocarbons were detected in three samples, ranging in concentration from 6 (station SS7) to 15 (station SS4) mg/kg. Diesel-range hydrocarbon was detected in five samples ranging in concentration from 34 (SS2) to 380 (station SS1) mg/kg.

Landslide Technology conducted a limited sampling of the PDF during maintenance

activities in February 2000. A total of 12 surface and subsurface soil samples [see Supplemental Figure 3 from Landside Technology (2000)] were collected and analyzed for TPH, select PAHs, and VOCs. Surface samples contained concentrations of diesel-range TPH ranging from 810 to 4,600 mg/kg, PAHs from 0.015 to 1.015 mg/kg, and VOCs from 0.33 to 5.5 mg/kg. Surface composite samples from the soil stockpile area contained gasoline-range hydrocarbons at concentrations ranging from 9.07 to 202 mg/kg, diesel-range hydrocarbons from 133 to 2,150 mg/kg, oil-range hydrocarbons from 216 to 285 mg/kg, and BTEX compounds (ethylbenzene = 0.319 mg/kg and xylene = 0.776 mg/kg). Subsurface boring samples contained gasoline-range (B-4/S-12, 78.6 mg/kg), diesel-range (B-4/S-12, 107 mg/kg), and oil-range (B-2/S-4, 52.0 mg/kg; and B-4/S-12, 223 mg/kg) hydrocarbons, and BTEX compounds (B-4/S-12, ethylbenzene = 0.267 mg/kg, toluene = 0.0749 mg/kg and xylene = 0.327 mg/kg) (Landside Technology 2000).

In February 2000, a liner was removed from the tank farm during maintenance activities, after which time a sheen was observed on water that collected in the northeast corner of the tank farm during periods of heavy rainfall. Water that pools in this area is pumped into storage tanks where it is sampled prior to discharge according to DEQ and City of Portland Bureau of Environmental Services (BES) requirements.

GeoEngineers collected and analyzed soil samples to assess the lateral and vertical extent of petroleum-contaminated soil in the northeast corner of the tank farm in September 2000. Nine shallow hand-augered borings were collected from within the AST farm, as shown in Supplemental Figure 2 from GeoEngineers (2000). Borings were completed to depths ranging between 1.0 and 6.0 feet bgs. A total of 12 soil samples were collected from these borings based on field-screening methods described in GeoEngineers (2000).

Samples were analyzed for TPH, BTEX compounds, PAHs (selected samples). The sample with the highest concentration of gasoline-range hydrocarbons was also analyzed for lead, 1,2-dibromoethane, 1,2-dichloroethane, and methyl-tert-butyl ether. Concentrations of gasoline-range hydrocarbons greater than DEQ's cleanup level for a Level 2 Soil Matrix site were detected in four samples. Diesel-range hydrocarbons were detected at concentrations greater than DEQ's cleanup level for a Level 2 Soil Matrix site in three samples. Ethylbenzene, toluene, and/or xylenes were detected in a total of five samples, but, with the exception of ethylbenzene detected in one sample, the detected concentrations of these compounds did not exceed DEQ and EPA cleanup criteria. Lead was detected in the single sample for which it was analyzed. Detected concentration ranges of samples are listed below:

Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)
Total Petroleum Hydrocarbons (TPH)		
Gasoline-range hydrocarbons	2.2	383
Diesel-range hydrocarbons	290	1,500
Oil-range hydrocarbons	54.9	116
Volatile Organic Compounds (VOCs)		
Ethylbenzene	0.075	0.075
Xylene	1.17	1.17
Polycyclic Aromatic Hydrocarbons (PAHs)		
Benzo(g,h,i)perylene	0.163	0.163
Fluoranthene	1.33	1.33
Metals		

Lead	27.7	27.7
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mg/kg = milligrams per kilogram (ppm)

GeoEngineers (2001) performed a Level II Environmental Site Assessment in February and March 2001. A total of 13 soil samples collected from five borings were submitted for analysis. Petroleum hydrocarbons were detected in a single sample at concentrations greater than DEQ's Level 2 Soil Matrix cleanup standards. Benzene was detected at a concentration slightly exceeding DEQ's RBC for the residential receptor scenario for the leaching to groundwater exposure pathway. Concentration ranges of detected constituents are provided below:

Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)
Total Petroleum Hydrocarbons (TPH)		
Gasoline-range hydrocarbons	<2.0	21.2
Diesel-range hydrocarbons	<25	209
Oil-range hydrocarbons	<50	541
Volatile Organic Compounds		
Benzene	<0.05	0.0834
Metals		
Lead	16.8	16.8
Arsenic	5.08	16.3
Copper	16.8	24
Zinc	71	130

mg/kg = milligrams per kilogram (ppm)

10.1.2. Riverbank Samples

☐ Yes ☒ No

The PDF facility is not located along the river bank.

10.1.3. Summary

TPH, PAHs, BTEX, and lead have been detected in upland surface and subsurface soil samples at the PDF site. Potential transport to the Willamette through groundwater is discussed in the next section.

10.2. Groundwater

10.2.1. Groundwater Investigations

☒ Yes ☐ No

Groundwater investigations at the PDF site include five grab samples obtained from borings in 2000 (Landslide Technology 2000) and the installation of four monitoring wells (MW-1, MW-2, MW-3 and MW-5) in 2001. These monitoring wells have been sampled five times between 2001 and 2003 (GeoEngineers 2003).

10.2.2. NAPL (Historic & Current)

☐ Yes ☒ No

NAPL has not been observed in onsite borings or monitoring wells.

10.2.3. Dissolved Contaminant Plumes

☒ Yes ☐ No

A dissolved groundwater plume is present in the shallow aquifer beneath the site. Groundwater COIs include TPH, PAHs, metals (lead, arsenic, copper, zinc), and petroleum-related VOCs (e.g., BTEX). Dissolved COIs have been detected in

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groundwater samples collected from monitoring wells and temporary well points. Detected COIs primarily consist of gasoline-range and diesel-range TPH, benzene, and PAHs.

Plume Characterization Status ☐ Complete ☒ Incomplete

Based on DEQ comments (DEQ 2004b), plume characterization is incomplete at the site. In addition, the DEQ noted the source of the plume is unclear.

Plume Extent

Varying concentrations of gasoline-range and diesel-range TPH, petroleum-related VOCs, PAHs, and dissolved metals have been detected in monitoring wells MW-3 and MW-5 and boring B-4 [see Supplemental Figure 2 from GeoEngineers (2003)]. The overall groundwater flow direction in the shallow aquifer is toward the Willamette River. The initial groundwater samples were collected from temporary well points, while subsequent groundwater samples were collected from monitoring wells. Groundwater COIs generally have not been detected in samples collected from monitoring wells MW-1 and MW-2, with the exception of metals. Samples collected from downgradient wells MW-3 and MW-5 generally have low concentrations of groundwater COIs. The source of the dissolved plume is unclear and the lateral extent of the plume does not appear to be defined (DEQ 2004b). In addition, DEQ notes that the groundwater data indicate the plume may extend offsite in the downgradient direction.

Min/Max Detections (Current situation)

The following table summarizes detected chemical concentrations in the four groundwater monitoring wells at the site during the most recent sampling event in March 2003 (GeoEngineers 2003).

Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)
<i>Volatile Organic Compounds (VOCs)</i>		
Benzene	<0.5	1.44
Ethylbenzene	<0.5	<0.5
Toluene	<0.5	<0.5
Xylene (total)	<1	<1
EDB	<0.01	<0.01
EDC	<0.2	<0.2
MTBE	<1	<1
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>		
Acenaphthene	<0.1	<0.1
Acenaphthylene	<0.1	<0.1
Anthracene	<0.1	<0.1
Benzo(a)anthracene	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	0.0416
Benzo(k)fluoranthene	<0.01	0.102
Chrysene	<0.01	<0.01
Fluoranthene	<0.1	0.17
Fluorene	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<0.01	<0.01
Naphthalene	<0.1	<0.1

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Phenanthrene	<0.1	<0.1
Pyrene	<0.1	0.155
Total Petroleum Hydrocarbons (TPH)		
TPH – Gasoline	<50	239
TPH - Diesel	<250	292
TPH – Oil	<500	<500

Current Plume Data

Based upon the data reviewed by GSI, the current estimated extent of the petroleum plume in the shallow aquifer is shown in Figure 2.

Preferential Pathways

The depth to groundwater during some parts of the year is only 0.5 foot bgs, and there is an open ditch running through the site. Available documents in the DEQ file do not include any discussion regarding the relationship between shallow groundwater and this storm sewer ditch. In addition, no information has been presented regarding the depths of the utilities (e.g., pipelines) at the facility relative to the shallow groundwater table, or if the utility and associated backfill may be a preferential pathway at the site.

Downgradient Plume Monitoring Points (min/max detections)

Downgradient monitoring points include boring B-4 and monitoring wells MW-3 and MW-5. The following table summarizes min/max concentration data collected from these three locations for all monitoring events. The maximum TPH concentrations shown in the table were detected in a grab sample from boring B-4. Supplemental Figure 2 from GeoEngineers (2003) provides a summary of all of the groundwater data collected at the site through March 2003.

Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)
Volatile Organic Compounds (VOCs)		
Benzene	<0.5	96
Ethylbenzene	<0.5	0.649
Toluene	<0.5	2.72
Xylene (total)	<1	2.57
EDB	<0.01	<0.01
EDC	<0.2	<0.2
MTBE	<1	8.17
Polycyclic Aromatic Hydrocarbons (PAHs)		
Acenaphthene	<0.1	1.52
Acenaphthylene	<0.1	0.176
Anthracene	<0.1	0.616
Benzo(a)anthracene	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	0.0416
Benzo(k)fluoranthene	<0.01	0.102
Chrysene	<0.01	<0.01
Fluoranthene	<0.1	0.17
Fluorene	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<0.01	<0.01

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Naphthalene	<0.1	2.4
Phenanthrene	<0.1	1.27
Pyrene	<0.1	0.155
Total Petroleum Hydrocarbons (TPH)		
TPH – Gasoline	<50	966
TPH - Diesel	<250	14,400
TPH – Oil	<500	22,800

Visual Seep Sample Data

☐ Yes ☒ No

The site is not adjacent to the river, and no seeps are associated with this site.

Nearshore Porewater Data

The site is not adjacent to the river. No nearshore porewater data are available.

Groundwater Plume Temporal Trend

The four monitoring wells have been sampled during five monitoring events between 2001 and 2003. The groundwater data show temporal variability over the year of record that may reflect seasonal water level changes; however, the period of record is insufficient to discern any long-term trends.

10.2.4. Summary

Low concentrations of petroleum constituents have been detected in shallow groundwater beneath the PDF site. The overall groundwater flow direction is toward the Willamette River. DEQ has suggested that the groundwater data indicate the plume may extend offsite in the downgradient direction.

10.3. Surface Water

10.3.1. Surface Water Investigation

☐ Yes ☒ No

Water was collected and analyzed from the tank pond at the PDF (Landslide Technology 2000). See the Exxon/Mobil Oil Terminal site summary (ECSI #137) for surface water descriptions of the entire property.

10.3.2. General or Individual Stormwater Permit (Current or Past)

☐ Yes ☒ No

Olympic Pipe Line does not hold any individual stormwater permits for any of its leased properties. Stormwater permits at the Exxon/Mobil Oil Terminal (both currently active and expired), where PDF is located, are summarized in the Exxon/Mobil Oil site summary.

Do other non-stormwater wastes discharge to the system?

☐ Yes ☒ No

10.3.3. Stormwater Data

☐ Yes ☒ No

10.3.4. Catch Basin Solids Data

☐ Yes ☒ No

10.3.5. Wastewater Permit

☐ Yes ☒ No

10.3.6. Wastewater Data

☐ Yes ☒ No

10.3.7. Summary

See the Exxon/Mobil Oil site summary for current and historic stormwater permits that include the PDF site.

10.4. Sediment

10.4.1. River Sediment Data

☐ Yes ☐ No

See the Exxon/Mobil Oil site summary for a discussion of Willamette River sediment data offshore from the Exxon/Mobil facility.

10.4.2. Summary

See Final CSM Update.

11. CLEANUP HISTORY AND SOURCE CONTROL MEASURES

11.1. Soil Cleanup/Source Control

Olympic Pipe Line reported a cleanup of petroleum-contaminated soils at the PDF site over a 2-day period in 1995 (Condon 2000, pers. comm.). A tally of the loads of petroleum-contaminated soil removed from the site is listed below. The area and the method of cleanup were not specified.

Date	Type	Quantity (tons)
12/4/95	Petroleum-contaminated soil	21.37
12/4/95	Petroleum-contaminated soil	22.95
12/5/95	Petroleum-contaminated soil	26.17
12/5/95	Petroleum-contaminated soil	21.67

Soil impacted by the fuel spill described in Pacific Northwest Environmental (1995) was the likely cause for removal of this contaminated soil. Pacific Northwest Environmental reported a total of 114.59 tons of soil removed during the cleanup process.

11.2. Groundwater Cleanup/Source Control

No groundwater cleanup actions have been conducted at the site.

11.3. Other

Additional information regarding any other types of cleanup or source control measures on properties leased by Olympic Pipe Line was not available.

11.4. Potential for Recontamination from Upland Sources

See Final CSM Update.

12. BIBLIOGRAPHY / INFORMATION SOURCES

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Pacific Northern Environmental. 1995. Above Ground Petroleum Spill Response and Independent Cleanup Report. Prepared for Cowlitz Clean Sweep, Longview, WA. Pacific Northern Environmental, Longview, WA.

Figures:

Figure 1. Site Features

Figure 2. Extent of Impacted Groundwater

Tables:

Table 1. Potential Sources and Transport Pathways Assessment

Supplemental Scanned Figures:

Figure 2. Groundwater Analytical Results (GeoEngineers 2003)

Figure 3. Site Location Map (Pacific Northern Environmental 1995)

Figure 2. Site Plan Sketch (Landslide Technology 2000)

Figure 2. Site Plan (GeoEngineers 2000)

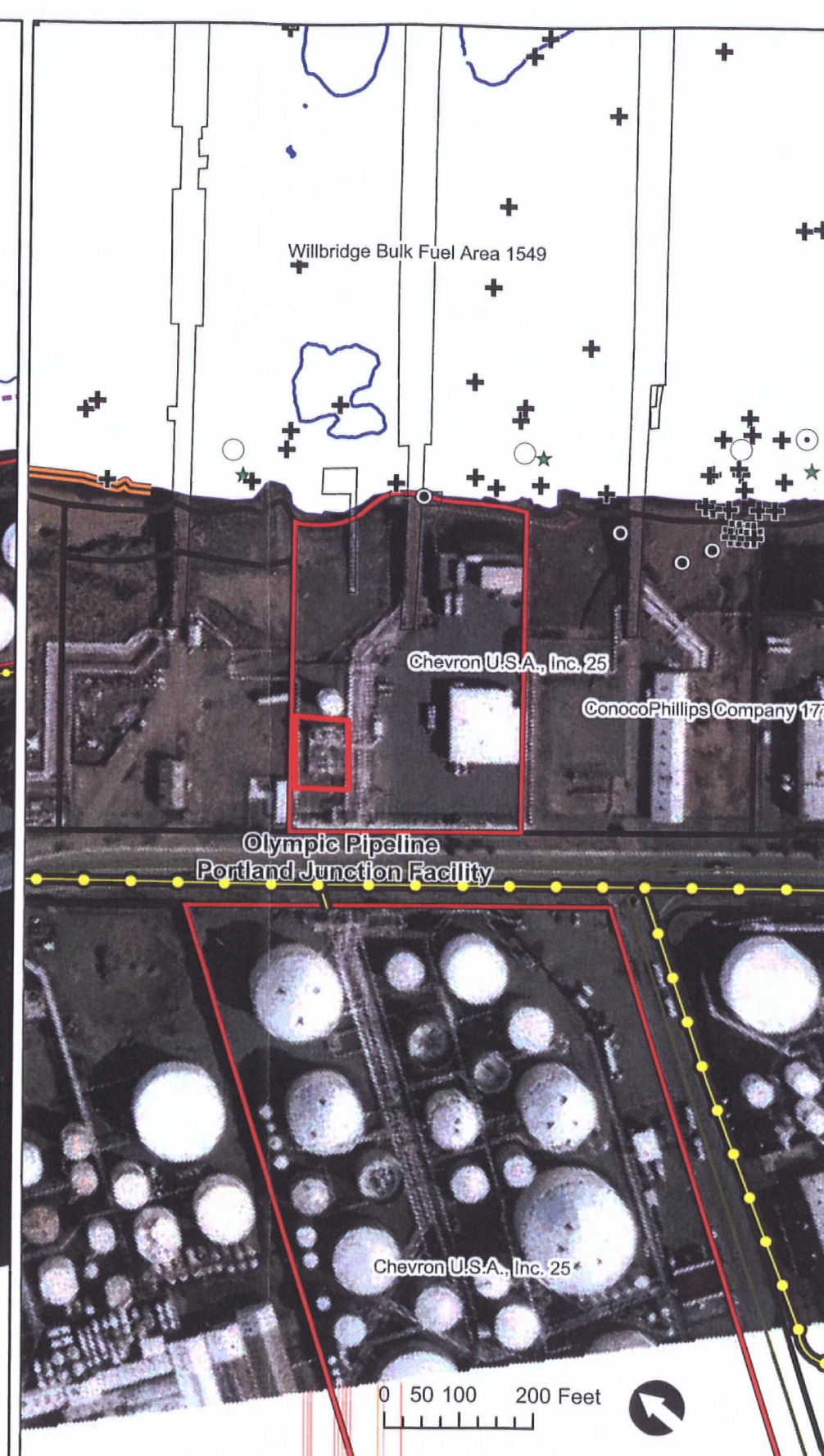
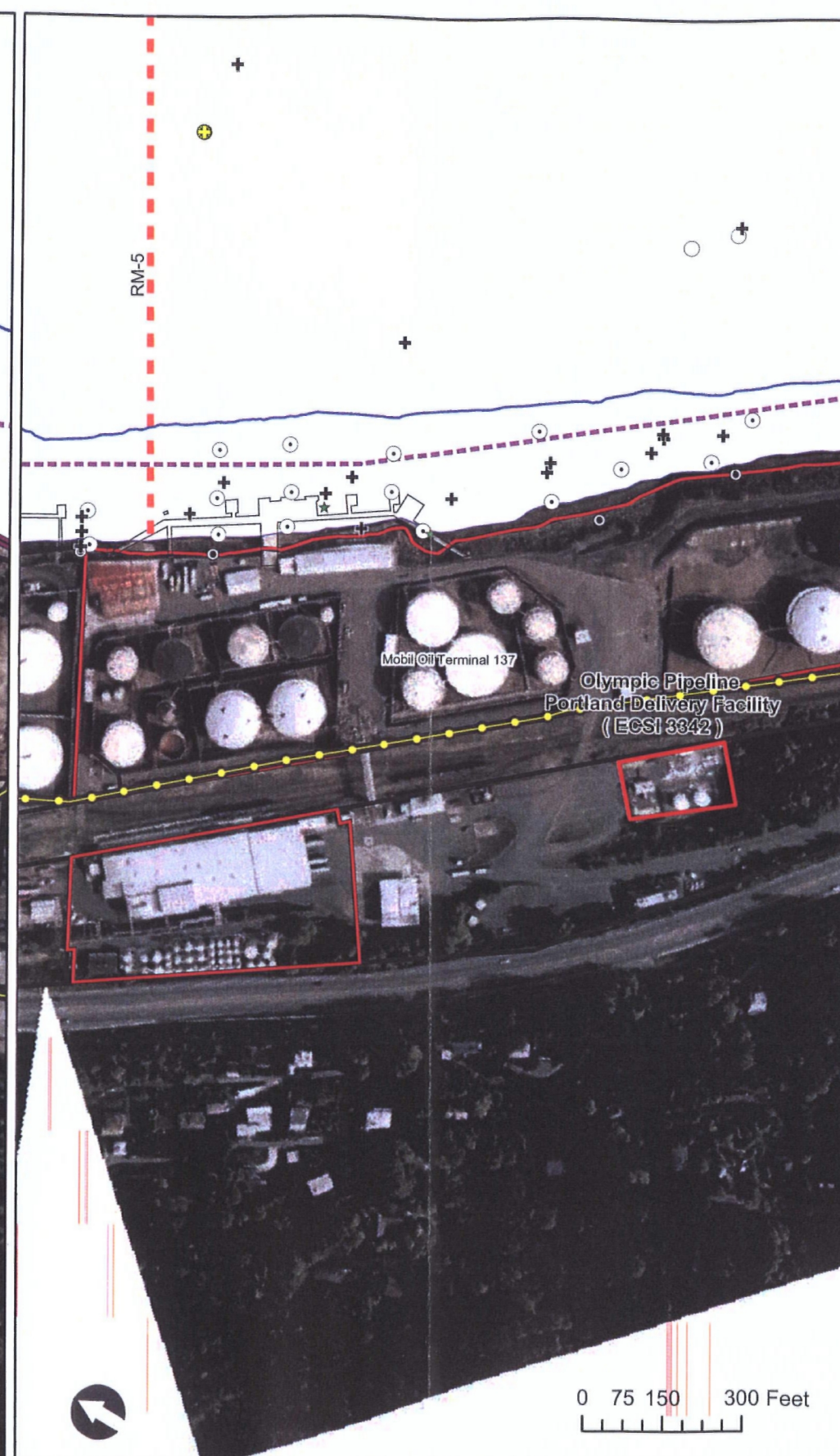
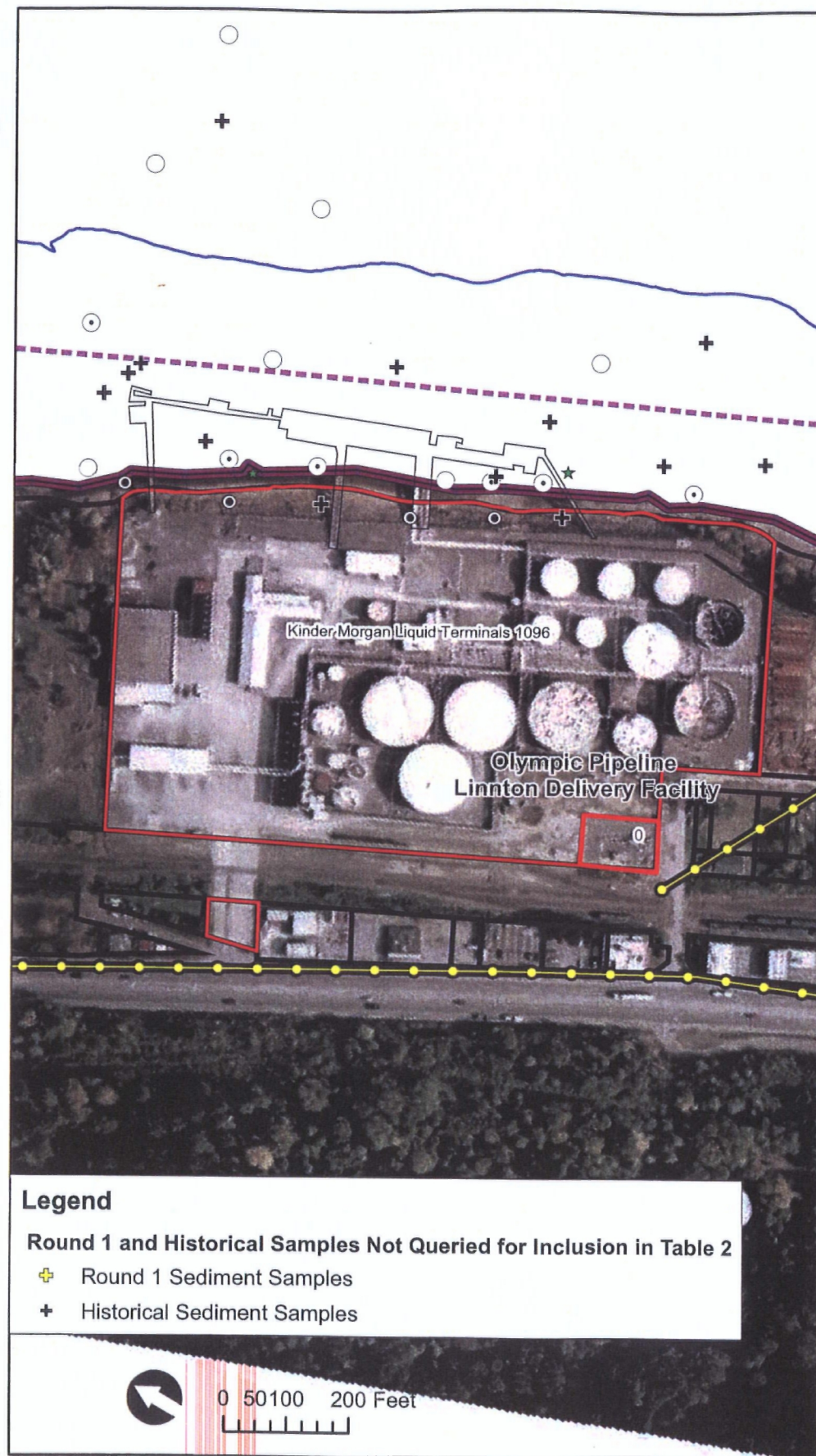
FIGURES

Figure 1. Site Features

Figure 2. Extent of Impacted Groundwater

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LWG
LOWE WILLAMETTE GROUP

Map Document: (C:\GIS\Projects\Portland_Harbor\
LWG-Map-Projects\Conceptual_Site_Model\Sample_Locations.mxd)
Plot Date: 05/24/2005

Outfall information contained on this map is accurate according to
available records; however, the City of Portland makes no warranty,
expressed or implied, as to the completeness or accuracy of the
information published (updated March 2005).

Pipeline Data provided by:
Kinder Morgan Energy Partners (use of file is restricted.)

- Outfalls
- ★ Seep Photo Location
(Not location of actual seep)
- Olympic Pipeline
- River Miles

- -35ft. contour (NAVD88)
- Docks & In Water Structures
- Selected ECIS Site Property Boundary

- Human Use Areas**
- Dockside Worker
- Recreational Beach Use
- Transient

- Proposed Round 2 Sediment samples**
- Core
- Surface

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Figure 1
Portland Harbor
Conceptual Site Model
Olympic Pipeline
ECIS 2374



0 50 100 Feet

FEATURE SOURCES:
Transportation, Water, Property, Zoning or Boundaries: Metro RLIS.
ECSI site locations were summarized in December, 2002 and January, 2003 from ODEQ ECSI files.

Map Creation Date: August 11, 2004

File Name: Fig2_OlympicPipe_SummaryMap.mxd

LEGEND

- Portland Delivery Facility
- Maximum Detection Location
- General Groundwater Flow
- Olympic Pipeline

Contaminant Type

- Petroleum Related

Extent of Impacted Groundwater

For details, refer to plume interpretation table in CSM document.

- Single or isolated detection of COI's. Extent or continuity of impacted groundwater between sample points is uncertain. Color based on contaminant type.
- Estimated extent of impacted groundwater area. Color based on contaminant type.

Figure 2
Portland Harbor RI/FS
Olympic Pipeline
Portland Delivery Facility (PDF)
Upland Groundwater Quality Overview

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TABLES

Table 1. Potential Sources and Transport Pathways Assessment

Olympic Pipe Line #2374 (#3342 for the Portland Delivery Facility)

Table 1. Potential Sources and Transport Pathways Assessment

Potential Sources	Media Impacted					COIs															Potential Complete Pathway				
	Surface Soil	Subsurface Soil	Groundwater	Catch Basin Solids	River Sediment	TPH			VOCs			SVOCs	PAHs	Phthalates	Phenolics	Metals (lead)	PCBs	Herbicides and Pesticides	Dioxins/Furans	Butyltins	Overland Transport	Groundwater	Direct Discharge - Overwater	Direct Discharge - Storm/Wastewater	Riverbank Erosion
Description of Potential Source						Gasoline-Range	Diesel - Range	Heavier - Range	BTEX	VOCs	Chlorinated VOCs														
Upland Areas																									
Pipeline pump station (area of 1995 fuel spill)	✓	✓	?				✓	✓	✓				✓									?			
AST-farm	✓	✓	✓			✓	✓	✓	✓				✓			✓						?			
Soil stockpile area	✓	✓				✓	✓	✓	✓				✓												
Injection pump area	✓	✓	?				✓		✓				✓									?			
Overwater Areas																									
Other Areas/Other Issues																									

Notes:

All information provided in this table is referenced in the site summaries. If information is not available or inconclusive, a ? may be used, as appropriate. No new information is provided in this table.

✓ = Source, COI are present or current or historic pathway is determined to be complete or potentially complete.

? = There is not enough information to determine if source or COI is present or if pathway is complete.

Blank = Source, COI and historic and current pathways have been investigated and shown to be not present or incomplete.

UST Underground storage tank

AST Above-ground storage tank

TPH Total petroleum hydrocarbons

VOCs Volatile organic compounds

SVOCs Semivolatile organic compounds

PAHs Polycyclic aromatic hydrocarbons

BTEX Benzene, toluene, ethylbenzene, and xylenes

PCBs Polychlorinated biphenols

SUPPLEMENTAL FIGURES

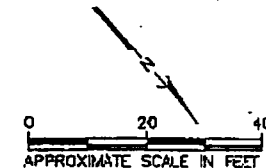
- Figure 2. Groundwater Analytical Results (GeoEngineers 2003)
- Figure 3. Site Location Map (Pacific Northern Environmental 1995)
- Figure 2. Site Plan Sketch (Landside Technology 2000)
- Figure 2. Site Plan (GeoEngineers 2000)

DO NOT QUOTE OR CITE

This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

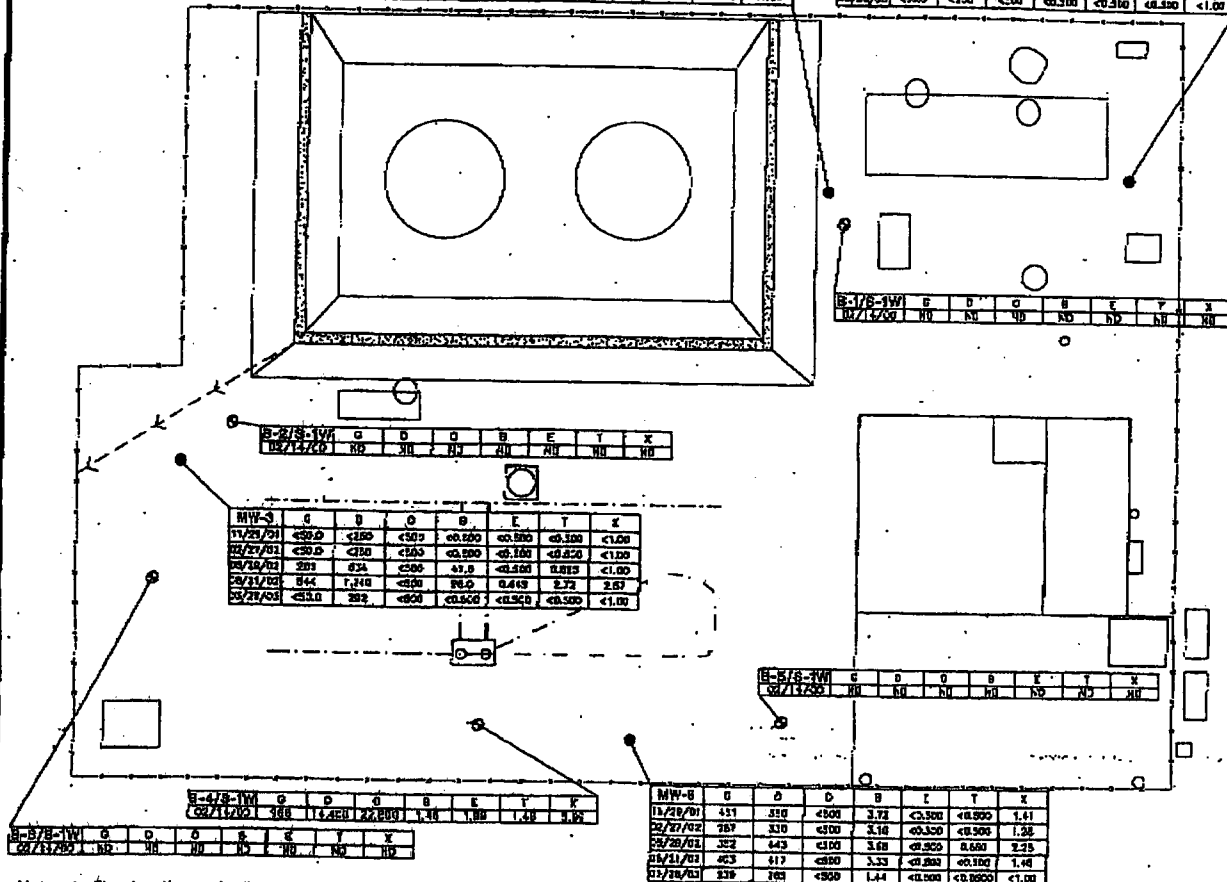
MW-2	G	D	O	B	E	T	X
11/29/01	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
02/27/02	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
05/18/02	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
08/31/02	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
09/25/03	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00

MW-1	G	D	O	B	E	T	X
11/29/01	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
02/27/02	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
05/18/02	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
08/31/02	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00
09/25/03	<50.0	<25.0	<100	<0.100	<0.500	<0.500	<1.00



EXPLANATION:

- MW-1 ● MONITORING WELL BY GEOENGINEERS IN FEBRUARY 2001
- B-1 ● BORING BY LANDSLIDE TECHNOLOGY IN FEBRUARY 2000
- ABOVEGROUND PIPING SYSTEM AND VALVES
- BELOW GROUND PIPING SYSTEM AND VALVES
- FENCE
- G GASOLINE ($\mu\text{g/l}$)
- D DIESEL ($\mu\text{g/l}$)
- O OIL ($\mu\text{g/l}$)
- B BENZENE ($\mu\text{g/l}$)
- E ETHYLBENZENE ($\mu\text{g/l}$)
- T TOLUENE ($\mu\text{g/l}$)
- X XYLENES ($\mu\text{g/l}$)
- ($\mu\text{g/l}$) MICROGRAMS PER LITER
- ND NOT DETECTED
- NOT ANALYZED



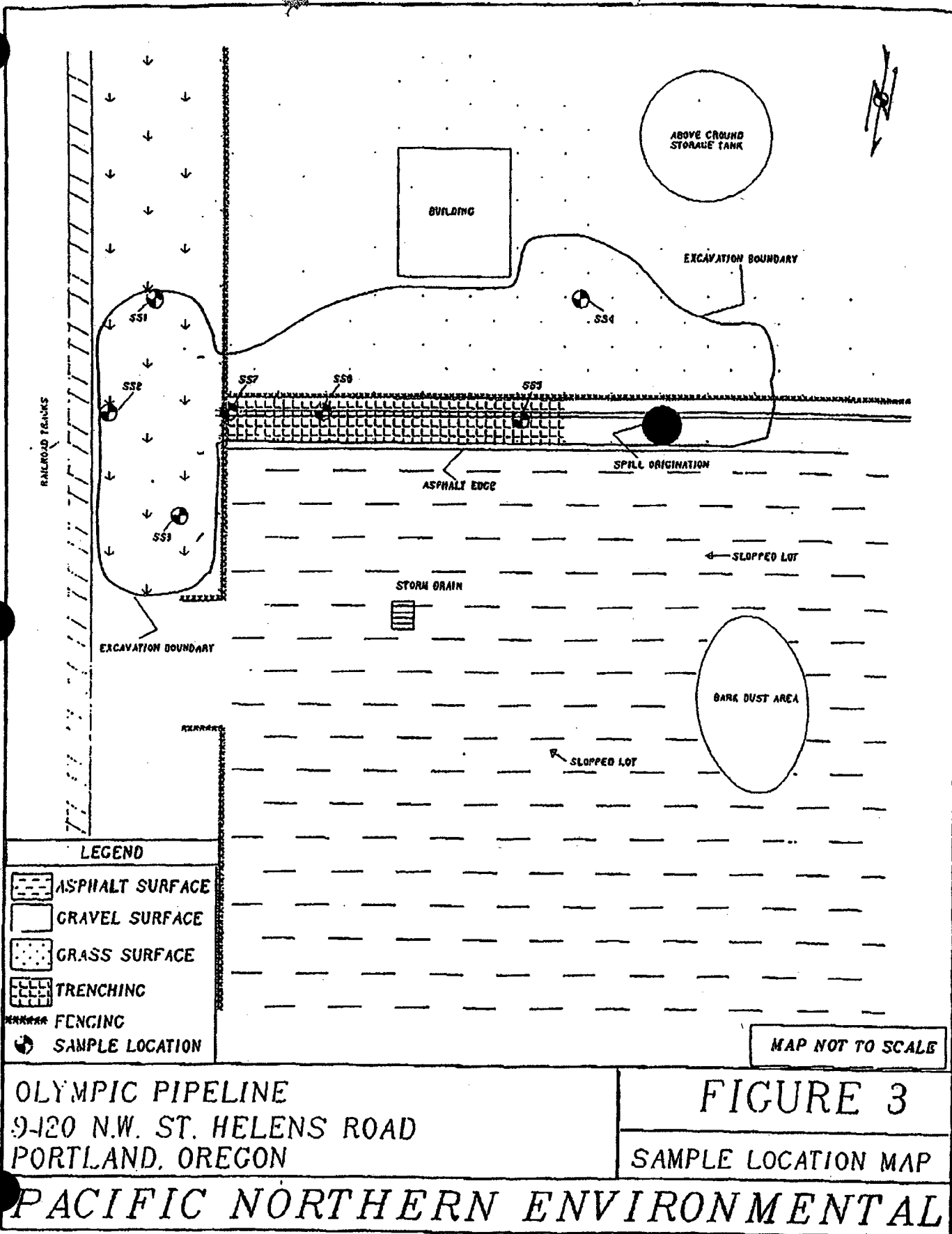
- Note: 1. The locations of all features shown are approximate.
 2. The numerous above- and below-grade piping extensions are not shown on this figure.
 3. See Figure 1 for explanation of site features.
 4. Actual AST containment berm size is 60 feet by 100 feet in plan.
 5. See Table 1 for notes and additional chemical analytical data.
 6. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

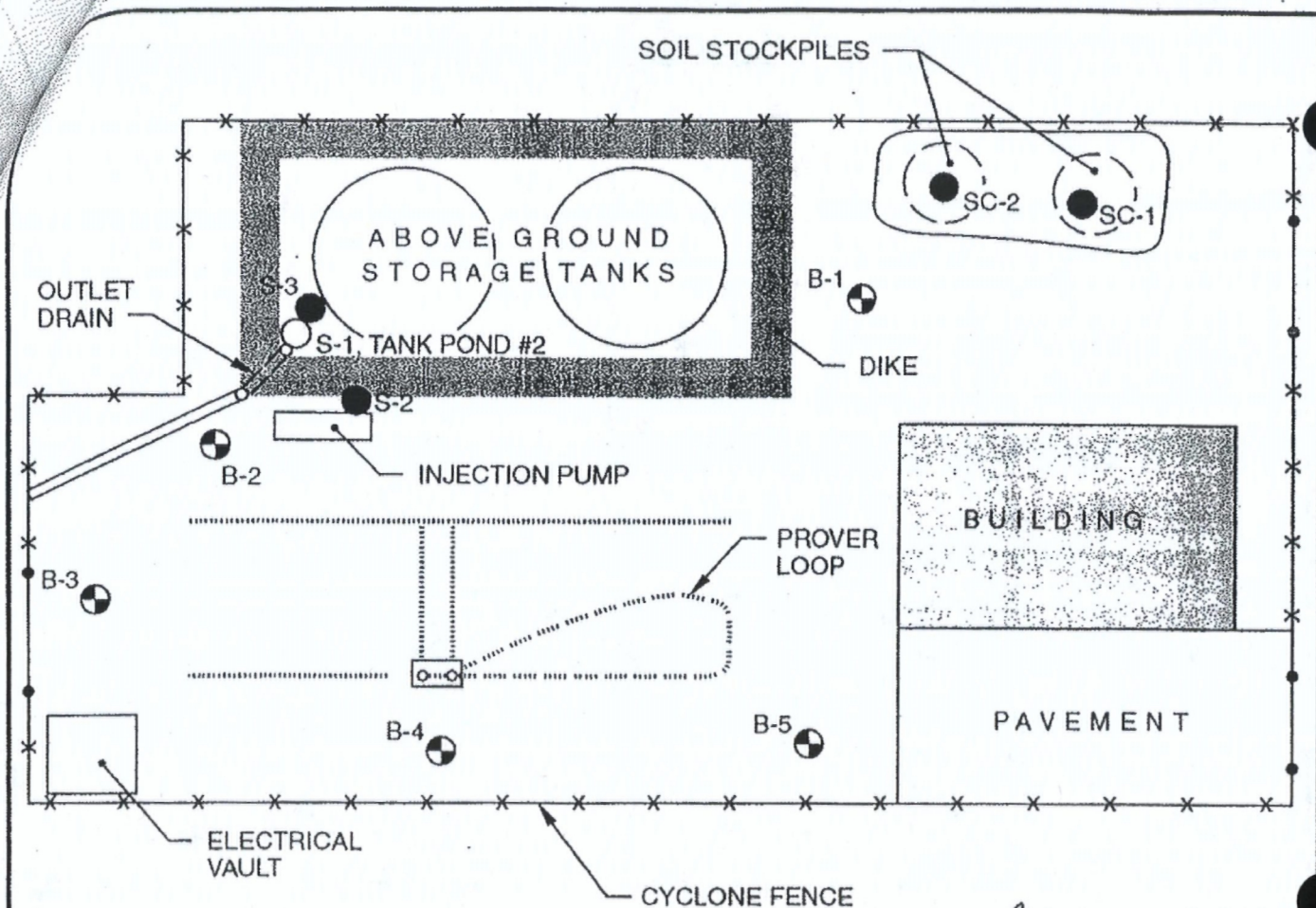
Reference: Base drawing entitled "Site Plan Sketch," of OPLC Portland Delivery Facility by Landslide Technology, dated March 2000.

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GROUNDWATER ANALYTICAL RESULTS

FIGURE 2





LEGEND

- B-1 APPROXIMATE BORING LOCATION AND DESIGNATION
 S-2 GRAB SOIL SAMPLE LOCATION AND DESIGNATION
 S-1 GRAB WATER SAMPLE LOCATION AND DESIGNATION
 SC-1 COMPOSITE SOIL SAMPLE LOCATION AND DESIGNATION
 ABOVE GROUND PIPING SYSTEM AND VALVES
 BELOW GROUND PIPING SYSTEM AND VALVES
 GATE

NOTE: SITE FEATURES AND LOCATIONS ARE APPROXIMATE AND BASED ON FIELD OBSERVATIONS ONLY



TITLE

SITE PLAN SKETCH

JOB

PORTLAND DELIVERY FACILITY
 PORTLAND, OREGON

M1256\FIGURE02 L.JW

DATE

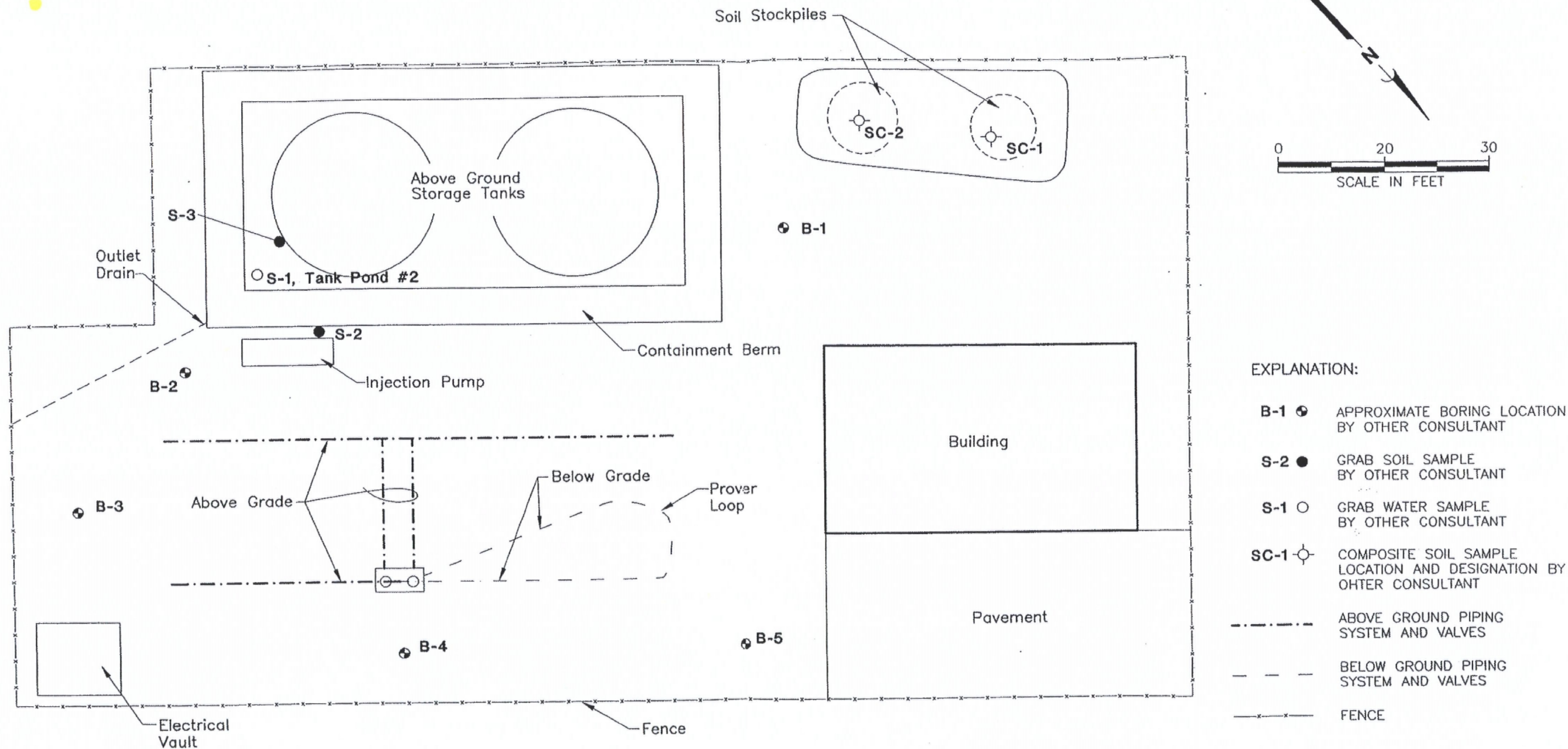
MAR 2000

JOB NO.

1256

FIG.

2



Note: The locations of all features shown are approximate.

Reference:

XX

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SITE PLAN

FIGURE 2